Angela Wu

ATERWYNNE LLP
ATTORNEYS AT LAW

Suite 5450
601 Union Street
Seattle, WA 98101-2327
206-623-4711
Fax 206-467-8406
Cellular 206-295-4343
awu@aterwynne.com

ATERWYNNE LLP
ATTORNEYS AT LAW

Suite 545
601 Union Stre
Seattle, WA 98101-232
206-623-471
Fax 206-467-840

December 29, 1998

VIA FEDERAL EXPRESS

Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals
445 12th St., SW
Washington, D.C. 20554

Re: CC Docket No. 94-102 - FCC E911 Order
Ex Parte Presentation

Dear Ms. Salas:

On November 30th and December 1st, Dan Allen, President & CEO of Integrated Data Communications (IDC), a provider of a signaling protocol technology for the handset solution, and Dan Preston, Co-Founder and Chief Technology Officer of IDC, and I, as attorney for IDC, met with the Wireless Telecommunications Bureau staff, the Chairman's office, and the Commissioners offices. We met with John Cimko, Jr., Chief, Policy Division; Nancy Boocker, Deputy Policy Chief; Ronald Netro, Marty Liebman, Daniel Grosh, Won Kim, and Barbara Riedler from the Wireless Telecommunications Bureau; and with Ari Fitzgerald in Chairman Kennard's office; Paul Misener and Commissioner Furchgott-Roth; Dan Connors in Commissioner Ness's office; Peter Tenhula in

Commissioner Powell's office; and Karen Gulick in Commissioner Tristani's office. We also met briefly with Rosalind Allen, Deputy Bureau Chief of the Wireless Bureau as Kathleen O'Brien Ham was out the day of our meeting.

The purpose of the meetings was to introduce IDC to the Commission, explain how its signaling protocol technology enables wireless carriers to meet the FCC's E911 requirements, and share the results of its field tests in King County, Washington. A copy of the presentation we shared with the Wireless Bureau's policy division, and the Chairman and Commissioner's offices is attached. We also included in the presentation a copy of a letter from Marlys Davis, E-911 Program Manager with the King County E-911 Program office in Washington. This letter is addressed to Nancy Boocker, and it explains the experiences of the King County E-911 Program office who participated in IDC's field tests. In our meetings with the Commission, we discussed the following subject matters:

Who is IDC?

IDC is located on Bainbridge Island in Washington. Prior to becoming President and CEO of IDC, Dan Allen was President of Nextel's Mid-Atlantic region. Dan Preston has spent almost twenty years as a special applications contractor to the Departments of Defense and Energy. When Dan Preston, the inventor of the technology, first took a look at the FCC's E911 requirements he took the approach of talking to the emergency services personnel to understand what they needed for public safety.

How Does IDC's Technology Work?

IDC developed a technology, a signaling protocol, that is transparent to both wireless and wireline networks. IDC's signaling protocol uses MF in-band signaling to transmit location information simultaneously with voice on the voice channel. The location information is obtained from global positioning satellites (GPS). Thus, IDC's technology, using a GPS chip, can transmit longitude, latitude, altitude, time, direction and speed to a PSAP with no impact or modification to existing wireless or wireline carrier networks, and minor modifications to PSAP networks.

IDC's technology works with all cellular standards currently employed in the industry (i.e., GSM, TDMA, CDMA, iDEN and AMPS). As IDC's technology is capable of transmitting location data on the same channel that carries voice, it requires no network modification and it does not require an overhead control channel. IDC's technology is compatible with both existing and new call taker equipment. This means that a carrier using IDC's technology can offer same level of service on day one of implementation. Thus, the capital investment by wireless or wireline carriers is negligible.

Accuracy and Reliability - Results of IDC's Field Test

IDC conducted a five-month field test of its technology in Washington in cooperation with US West, three national local wireless carriers, and the King County E-911 Program office. Based on the results of its field test, IDC was able to tell the Commission that its technology can locate a wireless handset 100% of the time, using the FCC's RMS measure.

IDC's technology was able to locate a wireless handset within 40 to 70 feet, 70 to 80% of the time. In the other 20 to 30% of the time, IDC's technology could locate a wireless handset well within the FCC's requirements of 125 meters (406 feet). IDC's field test included mountainous terrain, rural, suburban and urban canyons. IDC's presentation compares an area around Washington, D.C. to a similar geographic area for IDC's field test in Washington state.

Accuracy and Reduced Response Time

One of the key benefits to accuracy within 40 feet is the improved ability of the PSAP to direct an emergency service call to the closest emergency personnel, thus reducing response time. In IDC's presentation, the ability to locate a wireless handset within 40 feet enables the PSAP to see that the caller is on a side street and not on a major highway. When the FCC's requirement of 125 meters (406 feet) is used, a PSAP would not be able to quickly determine whether the caller was calling from a highway or a residential street. Knowing whether the call is from the highway or a residential street makes a difference to the PSAP that needs to know whether to direct the call to the highway patrol personnel closest to the highway, or whether to direct the call to the local police closest to the residential area of the emergency. The amount of time it takes to direct a call and to get emergency personnel to the right location can make a significant difference in the response time to the emergency situation. IDC's technology provides the location information from the time of the call to the PSAP, adding less than one and a half seconds to call set-up.

Selective Routing

When a 911 call is received, IDC's technology has the accuracy and ability to transfer location information, and route a call to the appropriate PSAP, based on the geographic location of the caller.

Tracking and Refreshing

Another important feature of IDC's technology is that it can track and refresh the location information of the wireless handset. A wireless subscriber is often mobile when calling about an emergency situation. On a highway, travelling at 50 to 60 miles per hour, the location of the caller can change rapidly. IDC created a software which it used in its field test, and the staff with the King County E-911 Program office was able to track a mobile wireless subscriber on a major interstate highway to within 40 feet. The screen shows that the caller was travelling northwest at 61 miles per hour (see IDC presentation). The call taker is able to update or "refresh" the location information by simply clicking on the "update location" button on the screen.

Transfer of Location Information

Also, since IDC's technology works in the voice channel, location information can be transferred with the call to another call taker, supervisor, or jurisdiction.

Existing Handsets

IDC's technology uses a GPS chip. Therefore, its technology can easily be built in to the chip and put into future handsets. More importantly however, as there are over 60 million wireless handsets in the market today, IDC's technology also works with existing handsets. IDC offers two economical solutions to the existing handset issue. First, the GPS chip can be built into the battery. Consumers can purchase a new battery for a low cost. Second, the GPS chip can slide between a wireless handset and its battery on a credit card thin "sleeve," also for a low cost.

Waiver Option

Apparently, many wireless carriers and location technology companies have been asking the Commission to clarify its waiver option should a carrier wish to pursue a handset solution to meet the FCC's E911 requirements.

If a carrier chooses a handset solution and utilizes a "churn-based transition" methodology, a majority of handsets would be E911 compliant by October, 2001. In Dan Allen's 25 years of industry experience, based on an approximate churn rate of 30 to 40% per year (based upon a 2 to 4% churn per month of a company's embedded base of subscribers), approximately 60 to 80% of new handsets can be E911 compliant by year-end 2001, assuming commencement in 1999.

Then, for the other 20 to 40% of existing handsets that do not have a GPS chip by year-end 2001, IDC's technology can also be built-in to wireless handset batteries, which consumers can purchase, or a "sleeve" option can be made available to consumers to modify

their existing handset. Alternatively, the FCC could decide to approve waiver requests by wireless carriers for a certain percentage of non-compliant handsets.

Roaming

IDC's technology provides two economical solutions for callers that leave their home market and roam to an outside market without a handset solution. First, if that caller has IDC's technology in the handset, and because IDC's technology provides location information in the voice channel, any PSAP can purchase a low priced IDC receiver unit which will enable that PSAP to receive and translate that caller's location information. Second, if a PSAP does not have IDC's receiving unit when a caller roams to an outside market without a handset solution, and that caller does not have IDC's technology in the handset, the call will default to providing location information based upon cell site and sector location information.

In-Buildings

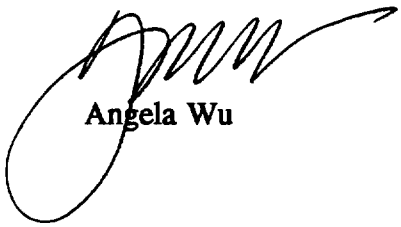
IDC's technology can locate a wireless caller in a building by floor when the caller is close to the perimeter of the building (e.g., by the window). However, if the building installs a re-radiating antenna, which is very low cost, IDC's technology can provide the location data in buildings as well. Also, when a caller's handset is on, IDC's technology can provide the last known location of that caller, and at minimum, provide the front door address of the building.

As mentioned above, the purpose of IDC's meeting was to educate and inform the Commission about IDC's technology, a signaling protocol that works in-band and which transmits location information along with voice, on a voice channel. The results of IDC's field test reflected a level of reliability and accuracy desired by PSAPs, and fully satisfies the FCC's E911 requirements for Phase II. Also, IDC's technology is available today.

Pursuant to Commission's Rule Section 1.1206, 2 copies of this letter with attachments are enclosed for filing in this docket. If you, or anyone else, have questions on this matter, I can be reached at 206.623.4711. Thank you.

Sincerely,

ATER WYNNE LLP



Angela Wu

cc: *With Attachments*
Dan A. Allen, President & CEO
Dan A. Preston, Co-founder & CTO
James A. Vroman, Co-founder & Executive Vice President
Gerald Vaughn, Acting Chief - Wireless Bureau
Kathleen O'Brien Ham, Deputy Chief - Wireless Bureau
John J. Cimko, Jr., Chief - Wireless Policy Division
Nancy Boocker, Deputy Chief - Wireless Policy Division
Anna Gomez, Deputy Chief - Common Carrier Bureau
Alan Thompson, Common Carrier Bureau

Nancy Boocker
Deputy Bureau Chief
Federal Communications Commission
2025 M Street, NW #7002
Washington, D.C. 20554

Gerald Vaughn
Acting Wireless Bureau Chief
Federal Communications Commission
Wireless Bureau
2025 M Street, NW, 5th Floor
Washington, D.C. 20554

Kathleen O'Brien Ham
Wireless Bureau
Deputy Wireless Bureau Chief
Federal Communications Commission
2025 M Street, NW, 5th Floor
Washington, D.C. 20554

Dan Allen
President and CEO
Integrated Data Communications
750 Ericksen Avenue NE
Bainbridge Island, WA 98110

Dan Preston
Co-Founder and CTO
Integrated Data Communications
750 Ericksen Avenue NE
Bainbridge Island, WA 98110

James Vroman
Co-Founder, Executive Vice President
Integrated Data Communications
750 Ericksen Avenue NE
Bainbridge Island, WA 98110

Ron Netro
Wireless Bureau - Policy Division
Federal Communications Commission
2025 M Street, NW, #7002
Washington, D.C. 20554

Marty Liebman
Wireless Bureau - Policy Division
Federal Communications Commission
2025 M Street, NW, #7002
Washington, D.C. 20554

Daniel Grosh
Wireless Bureau - Policy Division
Federal Communications Commission
2025 M Street, NW, #7002
Washington, D.C. 20554

Won Kim
Wireless Bureau - Policy Division
Federal Communications Commission
2025 M Street, NW, #7002
Washington, D.C. 20554

Barbara Riedler
Wireless Bureau - Policy Division
Federal Communications Commission
2025 M Street, NW, #7002
Washington, D.C. 20554

Ari Fitzgerald
Office of Chairman Bill Kennard
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Paul Misener
Office of Commissioner Harold Furchgott-Roth
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Peter Tenhula
Office of Commissioner Michael Powell
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Karen Gulick
Office of Commissioner Gloria Tristani
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Dan Connors
Office of Commissioner Susan Ness
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Rosalind Allen
Deputy Bureau Chief
Wireless Bureau - Policy Division
Federal Communications Commission
2025 M Street, NW, 5th Floor
Washington, D.C. 20554

Chairman Bill Kennard
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Commissioner Harold Furchgott-Roth
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Commissioner Michael Powell
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Commissioner Gloria Tristani
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Commissioner Susan Ness
Federal Communications Commission
1919 M Street, NW, 8th Floor
Washington, D.C. 20554

Brian Fontes
Vice President Federal Regulatory
CTIA
1250 Connecticut Avenue, NW #800
Washington, D.C. 20036

Alan Thompson
Common Carrier Bureau - Network Services
Federal Communications Commission
1919 M Street, NW
Washington, D.C. 20554

Anna Gomez
Common Carrier Bureau - Network Services
Federal Communications Commission
1919 M Street, NW
Washington, D.C. 20554

King County
E-911 Program Office
Emergency Management Division
Department of
Information and Administrative Services
7300 Perimeter Road South, Room 128
Seattle, WA 98108-3848
(206) 296-3910

November 24, 1998

Nancy Boocker, Deputy Bureau Chief
Wireless Bureau
Federal Communications Commission
2025 M Street
7th Floor, Room 7002
Washington, DC 20554

Dear Ms. Boocker:

The purpose of this letter is to inform you of our assessment of Integrated Data Communications' (IDC) wireless phone location technology. The King County E-911 system is heavily impacted by wireless 911 calls, and due to the difficulties and delays in handling these calls due to the lack of location information, has been actively involved in evaluating the various Phase II location technologies which are developing throughout the country. As part of this process, our office, along with the local exchange carrier which provides our Enhanced 911 service and several wireless carriers, participated in a technical evaluation of IDC's GPS location technology. This evaluation was conducted from June 1 to October 1, 1998 in various areas within King County. Based on the results of this technical evaluation, including the observations and use of the technology by my staff, 911 call takers, and myself, it is our belief that GPS technology is very effective at locating wireless callers and is a viable solution in meeting the FCC's requirements for Phase II wireless Enhanced 911 service. This technology is an effective solution for a variety of reasons, which are outlined below.

Accuracy

One of the most critical factors in being able to quickly respond to wireless 911 calls based on Phase II location information is the accuracy of the location provided. Many wireless callers who make 911 calls are in situations where they are unable to accurately describe their location to the 911 call taker. In such situations, the accuracy of the location technology used to locate the caller will be critical to being able to provide rapid emergency assistance. For the purposes of this technical evaluation, our office established the requirement of locating wireless callers to within 40 feet. This requirement was developed through discussions with 911 centers in Washington State, where the terrain in which wireless callers need to be located includes large

urban, suburban, rural, and mountainous areas. In order to test the ability of GPS technology to locate callers in these difficult terrains, areas of King County which include these different settings were identified as test areas.

In the field tests conducted during the technical evaluation, IDC's GPS technology was repeatedly capable of locating the wireless caller to within 40 feet, 80% of the time. In the other 20% of calls, IDC's technology located the wireless callers well within the FCC Phase II requirements of 125 meters, 67% of the time. This included calls from all of the different terrains discussed in the previous paragraph. I personally had the opportunity to make test calls from narrow alleys between the skyscrapers in downtown Seattle, and call takers at the 911 center were able to repeatedly pinpoint my exact location.

In addition to test calls from static locations, several tests in which the caller was moving were conducted. In these situations, 911 call takers were able to track the progress of the caller on the 911 computer screen as IDC's technology pinpointed each consecutive location.

Reliability

Another important function of Phase II location technology is the reliability of the technology in being able to locate callers. During this technical evaluation, IDC's GPS technology was able to locate 100 % of the calls which were transmitted. All calls which processed through the wireless network to reach the 911 network and the 911 center were located. Once again, this is a critical factor in evaluating Phase II location technologies.

Selective Routing

King County's Enhanced 911 system provides service to 1.6 million people through 18 different 911 centers. Due to the complexity of our system, it is critical that the Phase II location technology implemented within our area be highly accurate so that the selective routing of wireless 911 calls to the appropriate 911 center is possible based on the caller's location. As a result, this was included as a requirement for this technical evaluation.

IDC was able to demonstrate the selective routing of wireless calls based on the caller's location. In multiple situations, test callers drove on freeways and then exited onto local roads while making test calls. The calls from the freeways routed to the Washington State Patrol's 911 center, and the calls from the local roads routed to the local police 911 centers. In one of these field tests, I drove on the major interstate through downtown Seattle, exited in the downtown area and proceeded on a city street which runs parallel and adjacent to the freeway. IDC's technology clearly distinguished between the freeway and the surface street, and routed my wireless calls to the appropriate 911 center.

Based on our experience in participating in this technical evaluation and on the results of this test, we are very excited about the capabilities of IDC's GPS technology. This technology has

proven to be highly accurate and reliable, and has the capability of providing 911 centers with the tools they need to locate and provide emergency service to wireless 911 callers.

I strongly encourage the FCC to ensure that all Phase II location technologies, including handset solutions which use GPS technology, be given an equal opportunity to be evaluated as viable solutions for providing Phase II location technology to 911 centers.

I would be happy to answer any questions you or others at the FCC may have regarding this technical evaluation. Please feel free to contact me by phone at (206)296-3911, by fax at (206)296-3909, or by e-mail at marlys.davis@metrokc.gov if I can be of any assistance.

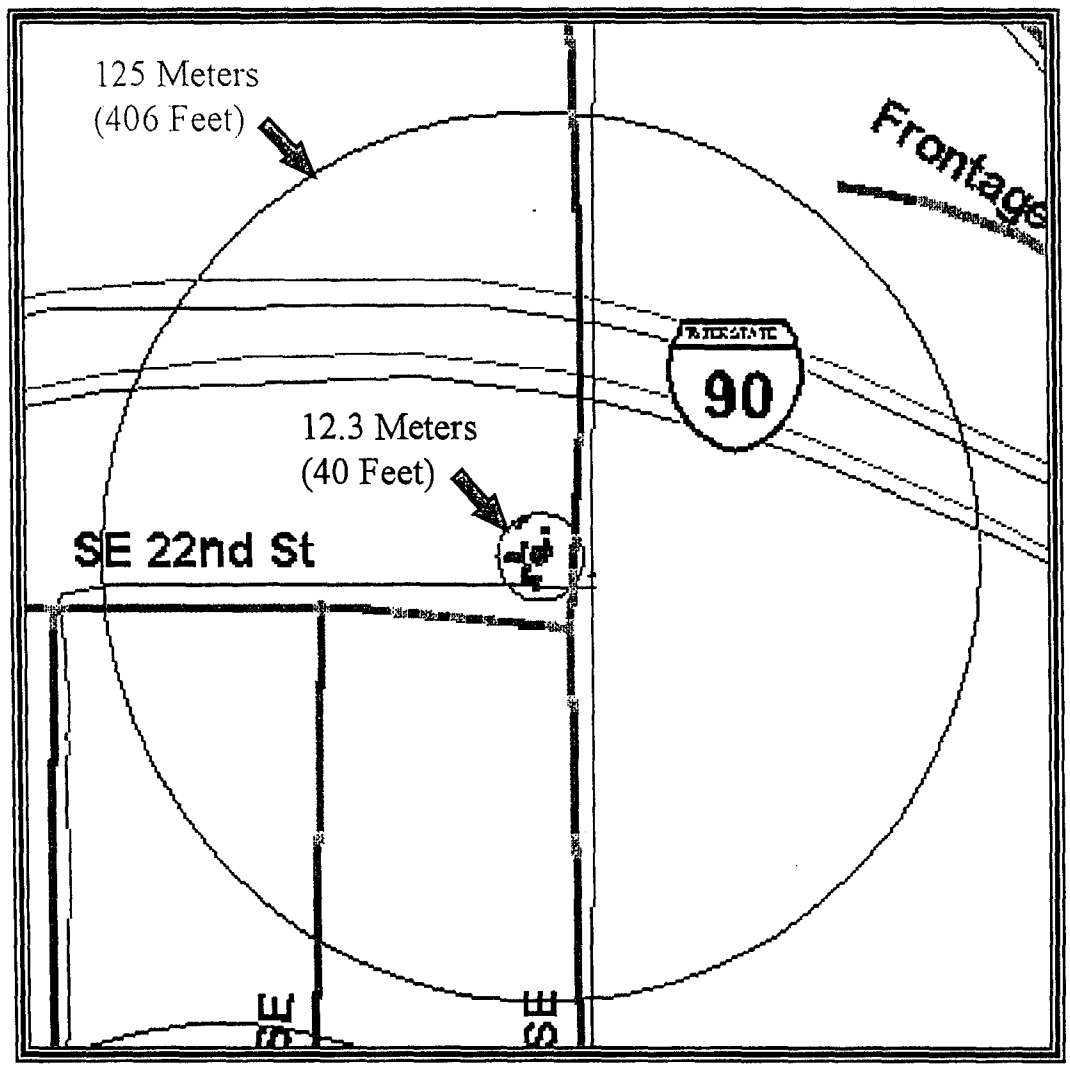
Sincerely,

Marlys R. Davis

Marlys R. Davis
E-911 Program Manager

Cc: Kevin Kearns, Manager, King County Emergency Management Division

Integrated Data Communications



Purpose of Meeting

- Show FCC E911 Phase II requirements are reasonable and executable
- Discuss how IDC's handset based solution can meet and exceed the FCC's E911 Phase II guidelines
- Explain how IDC's technology works
  - Existing handsets
  - Future handsets
- Discuss wireless carriers and PSAP's issues and concerns
- Share IDC's 5 month real-life test results
- Show that IDC solution is:
  - Fast
  - Accurate
  - Reliable
  - Economical
  - Retro-fittable
  - Available now

IDC Company Overview

- Based in Bainbridge Island, Washington
- Solid background in wireless, telecommunications, DOD and DOE complex integration projects
- Currently 14 people
- IDC developed technology that receives input from GPS in handset and transmits longitude, latitude, altitude, time, direction and speed to a call taker station with no impact or modification to existing wireless or wireline carriers, regardless of cellular technology employed.
- IDC is consistently accurate to 40 feet or less
- IDC is low cost, retrofittable to existing cell phones and call takers stations.

IDC Executive Team

Dan Allen - President and CEO

25 years telecommunications, 14 years cellular, led 10 start-up cellular companies domestic and international with Sprint, BellSouth International, TimeWarner, Nextel

Dan Preston - Chairman, Founder, Chief Technical Officer

20 years special applications contractor to DOD & DOE

Jim Vroman - Founder, Executive Vice President

30 years finance and business management

Carl Peterson - Vice President Business Development

17 years Motorola, President & CEO of Page Club USA

Rod Proctor - Vice President Business Development

16 years as President - Teltone, Tone Commander System, SeaMED

David Twyver - Consultant

Former President of Teledesic and Nortel Wireless

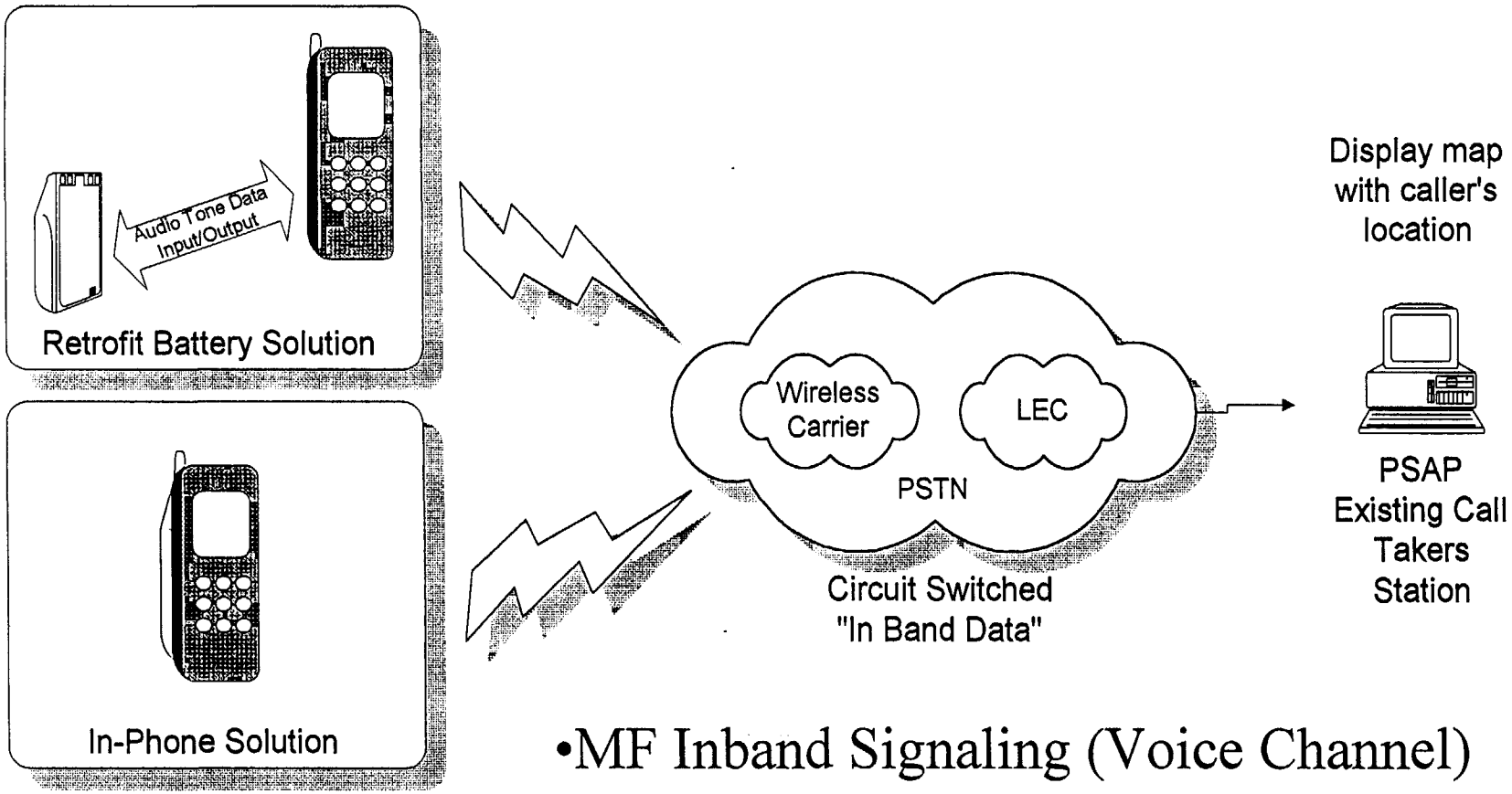
FCC E911 Phase II Requirements

- October 1, 2001
- Wireless carriers must locate **ALL** wireless calls within 125 meters 67 percent of the time

IDC Solution

- Accurate to 40 feet
- Compatible with all wireless technologies
  - AMPS - TDMA - CDMA - GSM - IDEN
- In-band signaling
  - Requires no network modification
  - Does not use overhead control channel
  - No impact on wireless & wireline networks
  - No capital investment by wireless or wireline carriers
  - Can route calls by caller location
  - FAST - Location appears on map as phone is answered
  - Can be retro-fit into batteries of existing phones
- Compatible with new & existing call taker equipment
- Can offer same level of service day one to Front Royal, Virginia as Washington D.C.

IDC Handset Solution - End to End



- MF Inband Signaling (Voice Channel)
- 300hz - 3000hz
- No impact on infrastructure

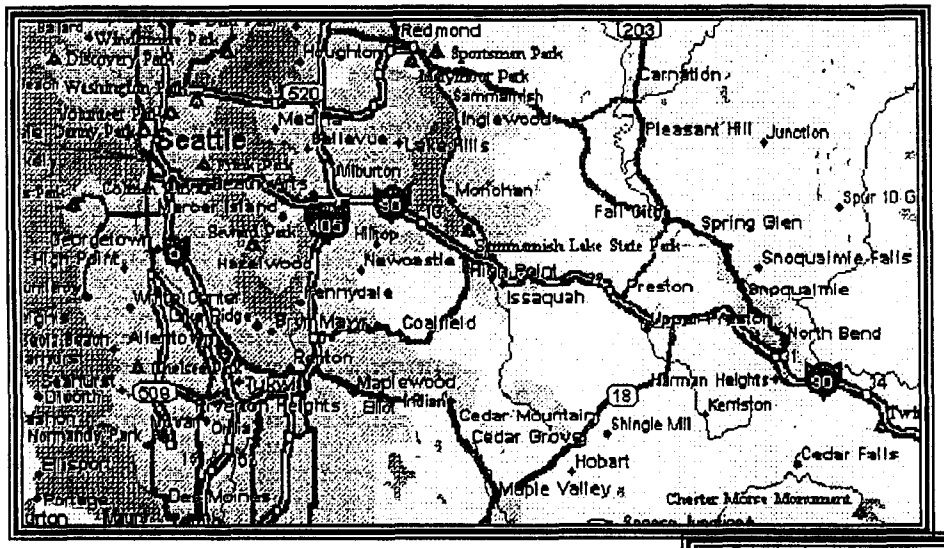
PSAP Call Taker Issues

- Want location capability on cell calls now
- Need money for new equipment
- Need a solution that is:
  - Fast
  - Accurate
  - Reliable
  - Economical
  - Compatible

Wireless Carrier Issues

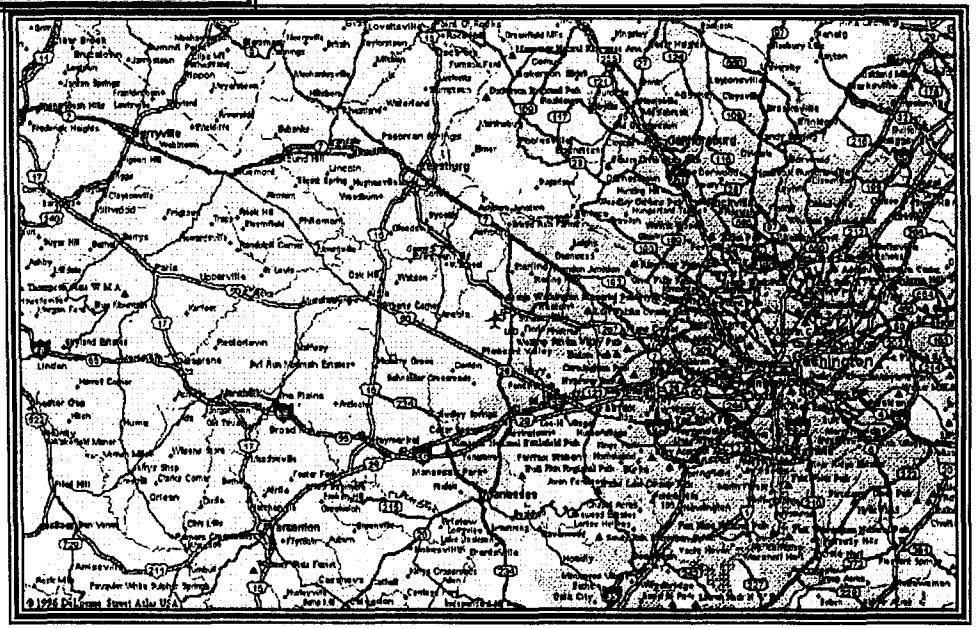
- Must meet FCC October 1, 2001 deadline for Phase II
- Capital is tight
- Coverage is number one concern
- Overhead control channel is at or near capacity
- Network solutions require:
  - Modification to cell sites
  - Modification to switch
  - Carrier handling of X,Y
  - Use of control channel
  - Capital

Real Life Coverage Area



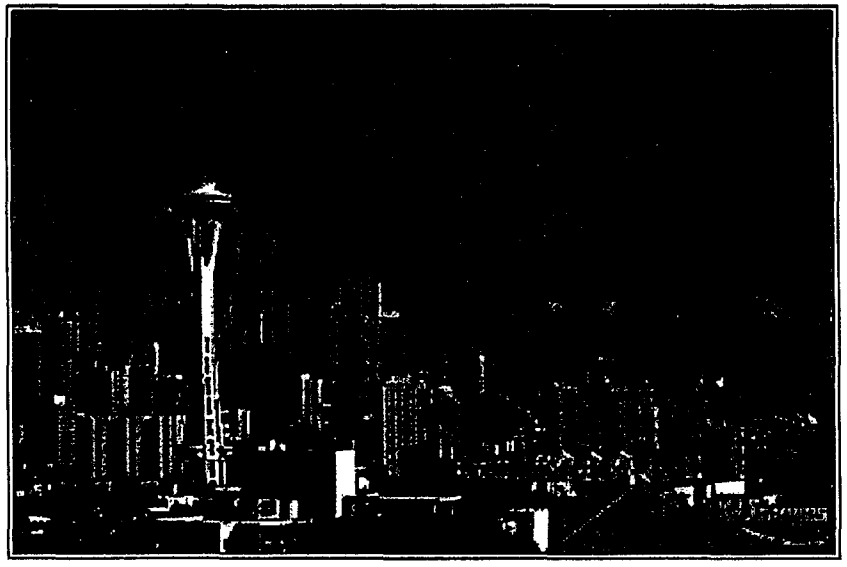
Seattle, King County, WA
(Seattle to North Bend)

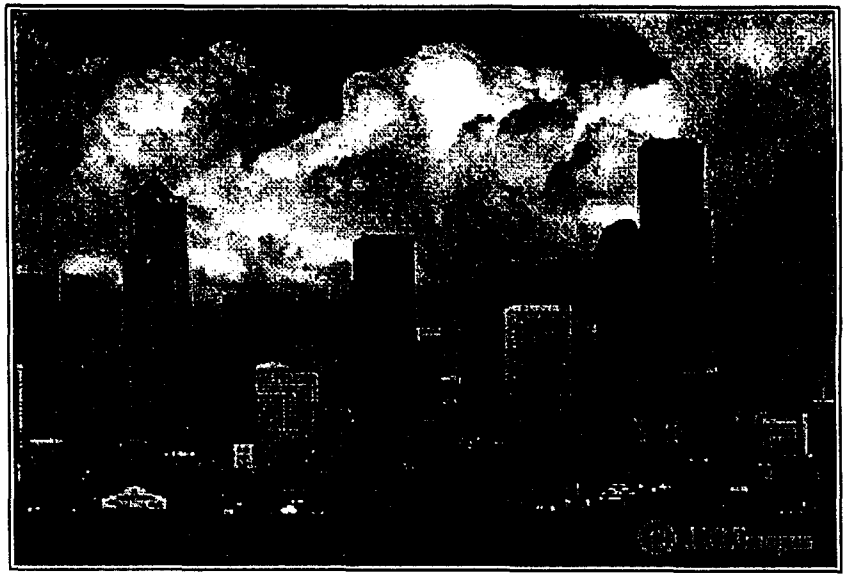
- Equivalent to -



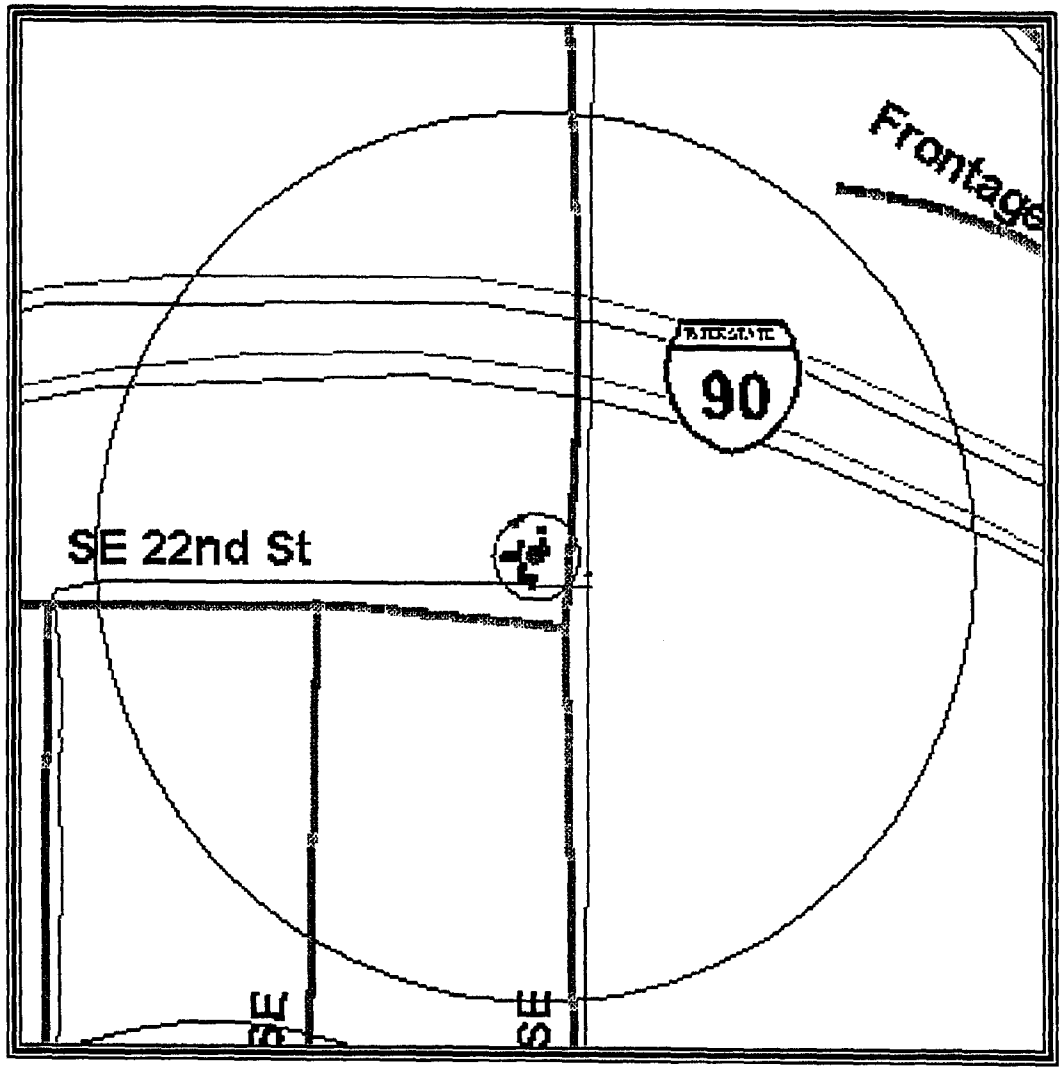
Washington D.C.
(Washington D.C. to Front Royal, VA)

Urban Canyon - Downtown Seattle

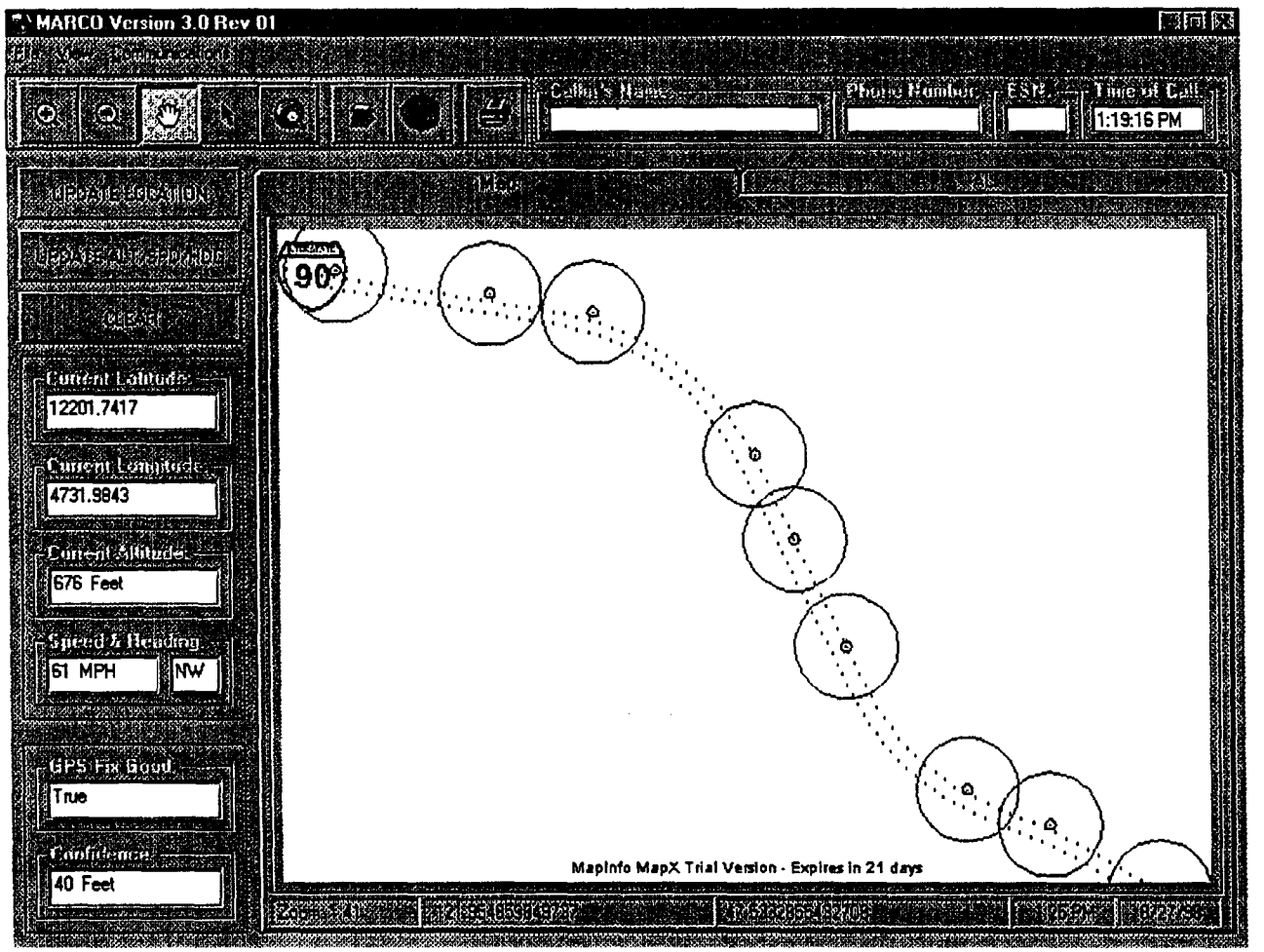




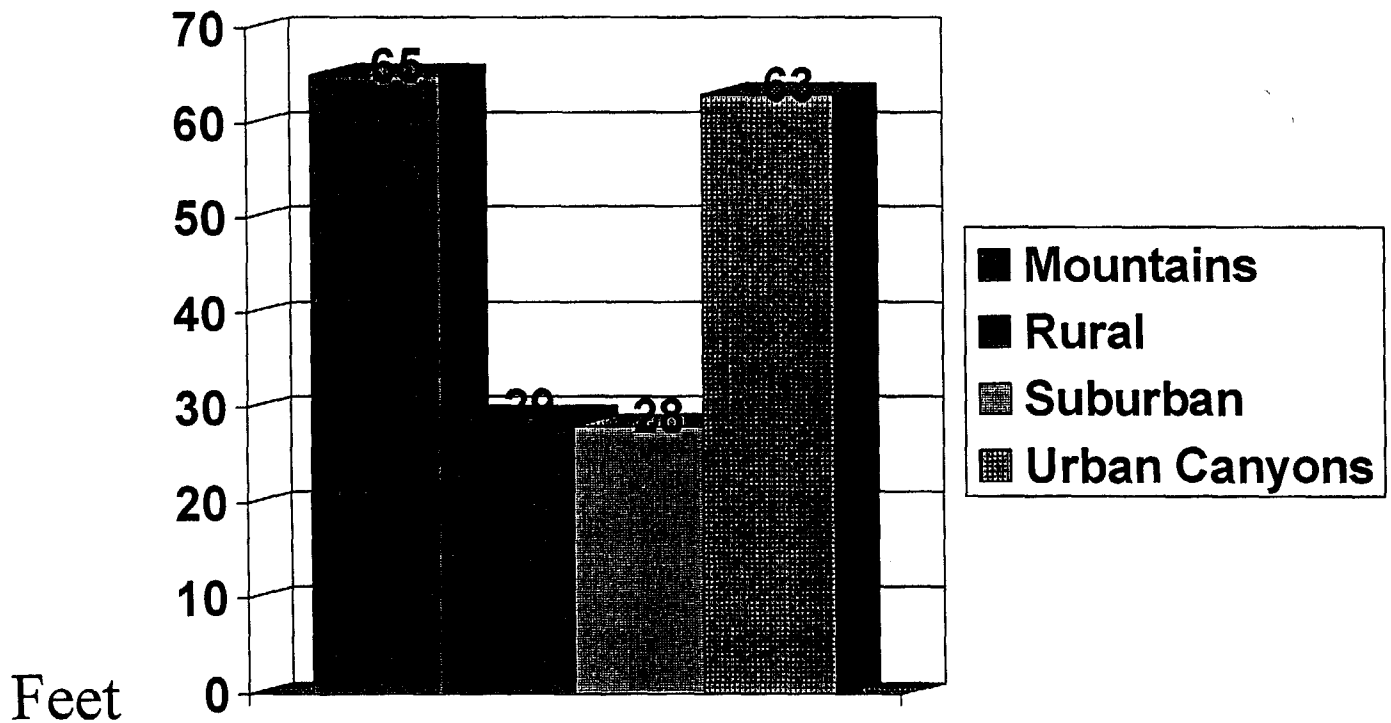
IDC Accuracy



Tracking and Refreshing



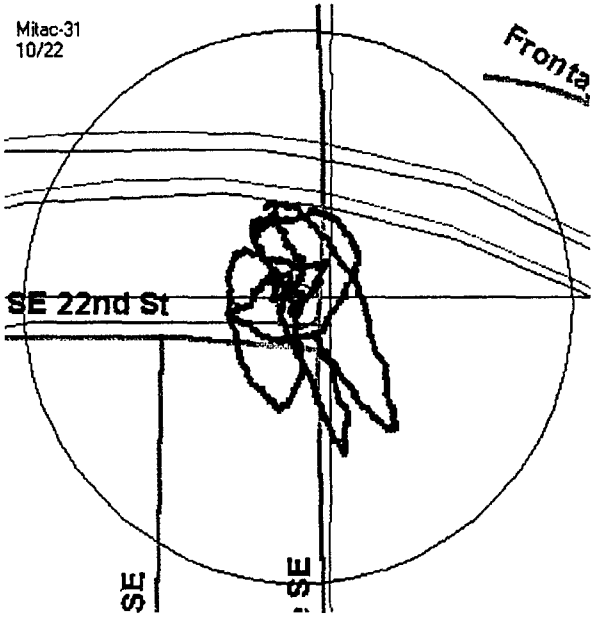
Reliability and Accuracy



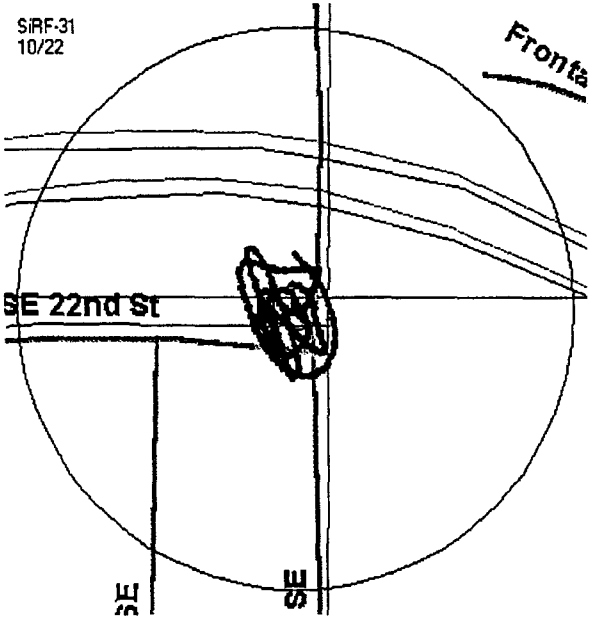
100% of ALL Calls Were Within 125 Meters

67% of **ALL** Calls In Each of The Call Areas Were Within 70 Feet

Technology Improvement



Beta 1.5



Beta 3.5

IDC - The Right Solution

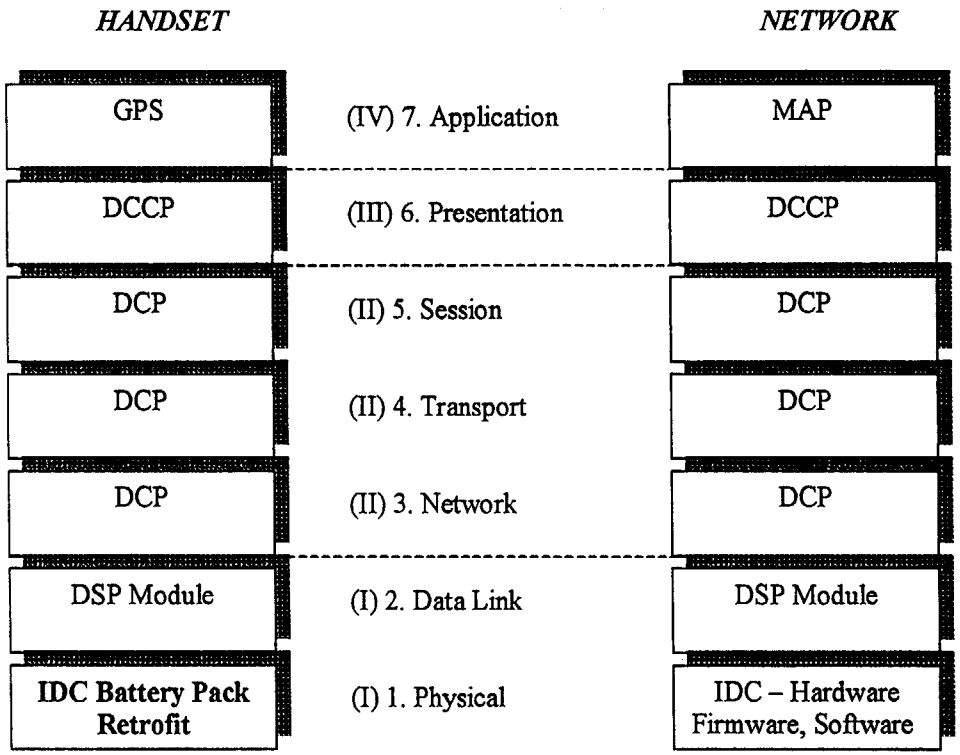
- Accuracy to within 40 feet (FCC requirement 125 meters = 406 feet)
- Delivers Longitude, Latitude, Elevation, Speed, Direction and Time on a map at a call takers station
  - Fast, Accurate, Reliable, Economical
- GPS in Handset - It works and is on the horizon (SiRF)
- Retro-fit in batteries for existing phones
- Built into new phones going forward
- In-band data transmission, open architecture, no network capital requirement
- Available today

Appendix

- Support Documentation

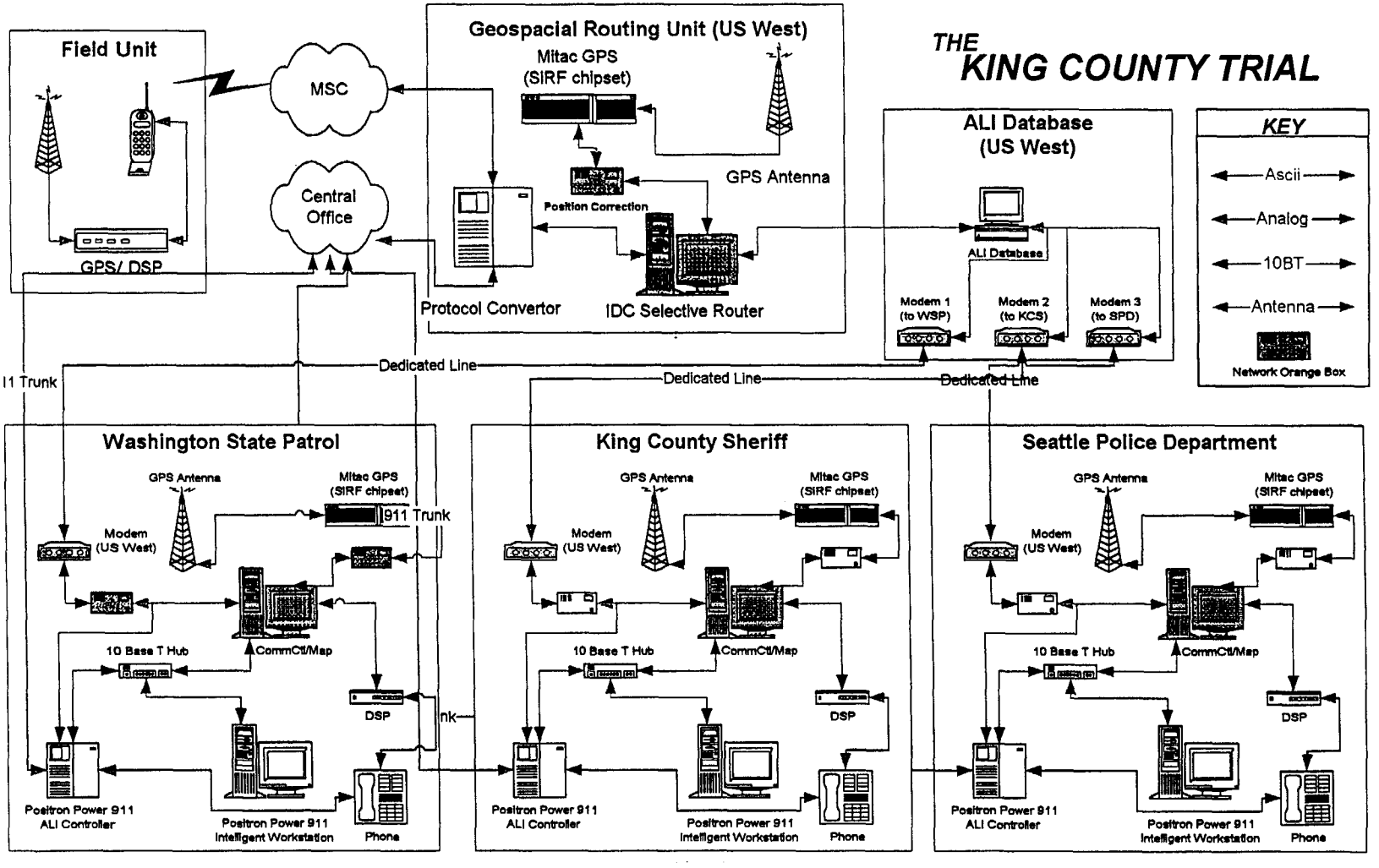
Standard Reference Model

- IDC employed the industry standard reference model in developing it's solution



Open Systems Interconnect (OSI)

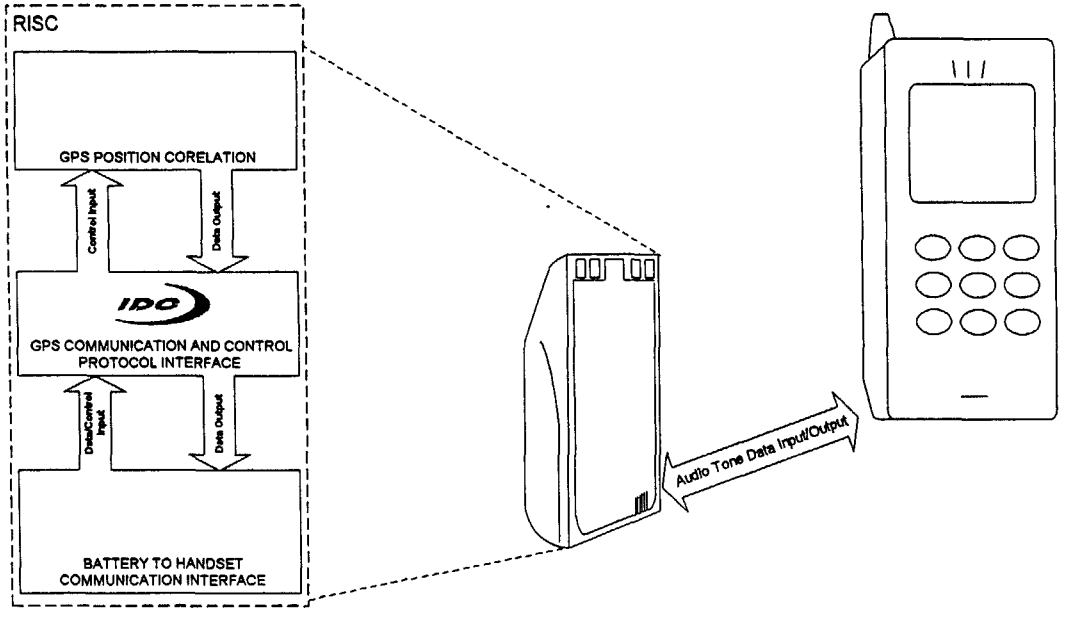
IDC System Reference Model



An IDC Solution: Retrofit

- Can be placed
  - In the battery
  - On the battery
  - Or between the battery and the cell phone

GPS BATTERY RETROFIT



Retrofit Firmware Architecture